What is claimed is:

1. A transconductance varying circuit of a transconductor circuit comprising:

a first and second amplifying devices having first, second and third nodes, the amount of current flowing to said second node from said first node being controlled in proportion to voltage applied to said third node;

a resistor being connected between said second nodes of said first and second amplifying devices;

a first and second bias current sources being connected with said second nodes and between grounds of said first and second amplifying devices; and

at least one resistor and at least one switching means, wherein said resistor and switching means are serially connected with each other and being connected with said second nodes of said first and second amplifying device.

2. A transconductor–capacitor filter having a transconductor and capacitor, said transconductor comprising:

a first and second amplifying devices having a first, second and third nodes, the amount of current flowing to said second node from said first node being controlled in proportion to voltage applied to said third node;

a resistor being connected between said second nodes of said first and second amplifying devices;

a first and second bias current source being connected with said second nodes and between grounds of said first and second amplifying devices; and

at least one resistor and at least one switching means wherein said

resistor and switching means are serially connected with each other to be connected with said second nodes of said first and second amplifying device.

3. The transconductor-capacitor filter of claim 2, wherein said first and second amplifying devices are MOSFET and wherein said first, second and third nodes are drain, source, and gate, respectively.

4. A tuning circuit of filter having a transconductor outputting current proportional to input voltage and varying capacitor being connected with output nodes and between grounds of said transconductor and having capacitance varying in accordance with level of control signal, said tuning circuit comprising:

a transconductor outputting current proportional to applied input voltage;

a comparator comparing voltage applied to input node to output signal to up-signal output node if the voltage of said input node is higher and to output signal to down-signal output node otherwise;

a counter being connected with said up-signal output node and said down-signal output node of said comparator, increasing or decreasing the level of output signal by a predetermined amount in response to said up-signal and said down-signal, said output signal being inputted as control signal to varying capacitor of said filter;

a varying capacitor being connected with output node of said transconductor and between grounds of said tuning circuit, capacitance thereof varying in accordance with the level of the output signal of said counter;

means for maintaining the output voltage of the transconductor of said tuning circuit as substantial zero for first period;

means for inputting said input voltage to said transconductor of said tuning circuit for second period; and

means for inputting output voltage of said transconductor of said tuning circuit to the input node of said comparator for third period.

5. The tuning circuit of claim 4 wherein said transconductor of said tuning circuit is embodied with the substantially same form as the transconductor of said filter.

6. The tuning circuit of claim 4, wherein the varying capacitor of said tuning circuit is embodied with the substantially same form as the varying capacitance of said filter.

7. The tuning circuit of claim 4, further comprising a capacitor being connected with said input node and between grounds of said comparator.

8. The tuning circuit of claim 4, wherein said varying capacitor comprises a main capacitor, auxiliary capacitor and a switching means, one end of said main capacitor being connected with one end of said switching means to connects output node of said transconductor, the other end of said switching means being connected with one end of said auxiliary capacitor, the other end of said main capacitor and said auxiliary capacitor being grounded.

9. The tuning circuit of claim 4, wherein said varying capacitor is embodied with one or more main capacitors and capacitor bank.